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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/687,386	10/15/2003	J. Christopher Moulder	A03P1070	2107

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PACESETTER, INC:
15900 VALLEY VIEW COURT
SYLMAR, CA 91392-9221

EXAMINER

MALAMUD, DEBORAH LESLIE

ART UNIT	PAPER NUMBER
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3766

DATE MAILED: 11/20/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/687,386

Applicant(s)

MOULDER ET AL.

Examiner

Deborah Malamud

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 September 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 4-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 4-26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

1. The examiner acknowledges the amendments received 25 September 2006.

Claims 2-3 are cancelled; claims 1 and 4-26 are pending.

Response to Arguments

2. Applicant's amendments, with respect to the rejection of claims 1, 4-12 and 20-26 under 35 USC 102(b) have been fully considered, and the rejection has been withdrawn. New ground(s) of rejection is made in view of Brink (U.S. 5,725,560).

3. Applicant's arguments filed 25 September 2006, in regards to claims 13-19 have been fully considered but they are not persuasive. The applicant argues that Mulhauser (U.S. 6,208,896) fails to disclose "an H-bridge comprising a plurality of legs, each leg including a stimulation output polarity control device and a stimulation output modulating device," in page 10 of "Remarks." The examiner respectfully disagrees. As previously cited, Mulhauser discloses (col. 4, lines 17-32) a switch-mode amplifier that is responsive to one or more control-signals that are pulse-width modulated; this switch-mode amplifier (col. 11, lines 20-40; Figures 4 and 5) includes a biphasic controller (130), which is implemented by an H-bridge made up of switches (470, 472, 474, and 476). Biphasic converter 130, responsive to the control signal, produces output voltage (232B, Figure 3). The examiner considers this to be a voltage supply circuit, and a control circuit that comprises an H-bridge that pulse-width modulates the output voltage to provide a stimulation output having a pulse-width modulated waveform. The H-bridge of Figure 4 has a plurality of legs. It is clear based on this passage that each leg

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includes a stimulation output polarity control device and a stimulation output modulating device. The rejection of these claims is therefore maintained.

Claim Objections

4. In view of the amendments to the claims, the examiner withdraws the objection to claim 10.

Claim Rejections - 35 USC § 112

5. In view of the amendments to the claims, the examiner withdraws the rejection of claim 9 under 35 USC 112, second paragraph.

Claim Rejections - 35 USC § 102

6. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
7. Claims 13-17 are rejected under 35 U.S.C. 102(b) as being anticipated by Mulhauser (U.S. 6,208,896). For a full discussion of the claim elements, please see the Non-Final Office Action dated 05 July 2006.
8. Claims 1, 4-7, 9-11, 13-17, 20-23 and 25 are rejected under 35 U.S.C. 102(b) as being anticipated by Brink (U.S. 5,725,560). Regarding claims 1, 7, 13-14, 17, 20, 22 and 25, Brink discloses (col. 5, lines 35-40; Figure 4) a defibrillator (50) "includes capacitor (22) charged by battery or charging device (23) when switches (24) are activated. Also like defibrillator (20), the patient is represented by resistance (29)." The

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examiner considers this to be an output adapted for connection across a load and a voltage (power) source that is switchably coupled across the output. Energy application (col. 5, lines 41-53) "is controlled by a pulse-width modulation switching network operatively connected between the capacitor and defibrillator contacts (28). In the embodiment of FIG. 4, the switching network comprises an H-bridge converter, including four electronic switches (S1, S2, S3, and S4). Switches S1 and S3 are connected in series between the positive and negative terminals of capacitor. A first intermediate switched node is defined between switches S1 and S3. Switches S2 and S4 are likewise connected between the positive and negative terminals of capacitor. A second intermediate switched node (58) is defined between switches S2 and S4." Brink further discloses (col. 6, lines 33-38) "modulator (72) is configured to act as a switch-mode power conversion circuit having H-bridge switch control outputs connected to control the on/off state of switches S1, S2, S3, and S4, respectively. Switches S1, S2, S3, and S4 are preferably insulated-gate bipolar transistors, commonly referred to as IGBTs." The examiner considers this to be pulse-width modulation circuitry operative to provide a pulse waveform, and an H-bridge including a first leg and a second leg, each leg including a first switching device operative to receive the pulse waveform, and alternately couple and decouple the first voltage supply across the output in accordance with the pulse waveform to provide a stimulation output having a pulse-width modulated waveform.

9. Regarding claims 4-5, 11, 15 and 23, Brink discloses (col. 5, lines 63-67; col. 6, lines 1-2) "switches S1 and S4 are active (rapidly switched on and off by modulator 72)

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during positive portions of the reference waveform, while switches S2 and S3 are off.

Likewise, switches S2 and S3 are active (rapidly switched on and off by modulator 72)

during negative portions of the reference waveform, while switches S1 and S4 are off."

The examiner considers this to be a second switching device that controls polarity of the stimulation output.

10. Regarding claims 6, 16 and 21, Brink discloses, (col. 2, lines 56-67) "Each stored waveform preferably comprises a sequence of digital numeric amplitude values, with successive values representing amplitudes of a waveform at successive points in time.

Alternatively, one or more stored waveforms can be represented as one or more mathematical equations, such as $A \sin x$, (where A is the amplitude, and where x is from $0-\pi$ for a monophasic waveform, and from $0-2\pi$ for a biphasic waveform), or in some other format understandable by waveform generator (34). Any information stored in memory (36) that is used to give the defibrillation waveform a desired shape is considered a 'stored waveform.'" The examiner considers this to be a comparison circuit that compares a desired output waveform to a timing waveform and provides control signals to the pulse-width modulation circuitry to define the pulse waveform.

11. Regarding claim 9, Brink discloses, (col. 2, lines 44-50) "filter (27) comprises an inductor connected in series with defibrillation contacts (28) and a capacitor connected in parallel with patient impedance (29). A commutating diode (25) is also connected in parallel with patient impedance on the unfiltered side of filter." The examiner considers this to be an inductor coupled in series with the legs of the H-bridge and a pair of blocking diodes coupled to the inductor.

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12. Regarding claim 10, Brink discloses, (col. 5, lines 33-35) "Defibrillator (50) contains defibrillator charge/discharge circuitry (51) and waveform selection circuitry (70)." The examiner considers this to be the first switching device of each leg operative to receive a pulse waveform from pulse-width modulation circuitry.

Claim Rejections - 35 USC § 103

13. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

14. Claims 8 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brink (U.S. 5,725,560). Brink discloses the claimed invention but does not disclose expressly the non-polar capacitor. It would have been an obvious matter of design choice to a person of ordinary skill in the art to modify the capacitor of Brink, with the non-polar capacitor, because the applicant has not disclosed the non-polar capacitor provides an advantage, is used for a particular purpose, or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected the applicant's invention to perform equally well with the capacitor as taught by Brink, because it is able to provide an output voltage to the switch amplifier in such a way as to control the waveform of the signal. Therefore, it would have been an obvious matter of design choice to modify Brink's capacitor to obtain the invention as specified in the claim.

15. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mulhauser (U.S. 6,208,896) or over Brink (U.S. 5,725,560). Mulhauser and Brink

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disclose the claimed invention but do not disclose expressly the non-polar capacitor. It would have been an obvious matter of design choice to a person of ordinary skill in the art to modify the switch amplifier as taught by Mulhauser or the capacitor of Brink, with the non-polar capacitor, because the applicant has not disclosed the non-polar capacitor provides an advantage, is used for a particular purpose, or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected the applicant's invention to perform equally well with the capacitor as taught by Brink or Mulhauser, because it is able to provide an output voltage to the switch amplifier in such a way as to control the waveform of the signal. Therefore, it would have been an obvious matter of design choice to modify Mulhauser's switch amplifier or Brink's capacitor to obtain the invention as specified in the claim.

16. Claims 12 and 24 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Brink (U.S. 5,725,560). The examiner considers that the leg of the H-bridge can comprise either the two sides comprising two switches or the four sides, each comprising one switch. In this case, then each leg has both polarity control and output voltage modulation. However, in the case that a third leg comprises two additional switches, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Brink to include a third leg with two additional switches, since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis PaperCo. v. Bemis Co.*, 193 USPQ 8. See MPEP § 2144.04. It should be noted that the

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use of a third leg including another set of two switches teaches away from the concept of using an H-bridge as an output control.

17. Claim 19 is rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Mulhauser (U.S. 6,208,896) or over Brink (U.S. 5,725,560). The examiner considers that the leg of the H-bridge can comprise either the two sides comprising two switches or the four sides, each comprising one switch. In this case, then each leg has both polarity control and output voltage modulation. However, in the case that a third leg comprises two additional switches, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Mulhauser or Brink to include a third leg with two additional switches, since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis PaperCo. v. Bemis Co.*, 193 USPQ 8. See MPEP § 2144.04. It should be noted that the use of a third leg including another set of two switches teaches away from the concept of using an H-bridge as an output control.

Conclusion

18. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

19. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Deborah Malamud whose telephone number is (571) 272-2106. The examiner can normally be reached on Monday-Friday, 9.00am-5.30pm.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Pezzuto can be reached on (571)272-6996. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Robert E Pezzuto
Supervisory Patent Examiner
Art Unit 3766



Deborah L. Malamud
Patent Examiner
Art Unit 3766